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Title : A multi-elemental approach to identification of sub-populations of whales

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Student : Not Applicable

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Abstract : A combination of heavy metals, organochlorines (OC) and fatty acids (FA) that reflect long-term deposition in tissues were used in a Canonical Discrimination Analysis (CDA) exploring population sub-structure in 104 minke whales (*Balaenoptera acutorostrata*) that were sampled in West Greenland, the North Atlantic and the North Sea in 1998. A CDA that included mercury and cadmium in muscle, liver and kidney, and eight OCs and four unsaturated FAs in blubber was able to separate the whales into four sub-populations that previously also had been identified genetically: (1) West Greenland, (2) a central group represented by whales from Jan Mayen, (3) a Northeast Atlantic group (Svalbard, Barents Sea and northwestern Norway), and (4) the North Sea. During an assignment test based on the data transformation developed by the CDA, about 84% of the individuals were correctly assigned to the area where they had been caught. The highest degree of mis-assignment was between Jan Mayen and the Northeast Atlantic group. The study indicated that a multi-elemental approach based on long-term deposited compounds with different ecological and physiological path-ways may assist in identification of sub-populations of marine mammals.